Oracle® Database

Release Notes

10*g* Release 2 (10.2) for Solaris Operating System (x86-64)

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This document contains important information that was not included in the platform-specific or product-specific documentation for this release. This document supplements *Oracle Database Readme* and may be updated after it is released.

This document may be updated after it is released. To check for updates to this document and to view other Oracle documentation, refer to the Documentation section on the Oracle Technology Network (OTN) Web site:

http://www.oracle.com/technology/documentation/

For additional information about this release, refer to the readme files located in the $ORACLE_HOME/relnotes directory.

This document contains the following topics:

- Certification Information
- Unsupported Products
- Preinstallation Requirements
- Documentation Corrections and Additions
- Installation, Configuration, and Upgrade Issues
- Other Known Issues
- Documentation Accessibility

1 Certification Information

The latest certification information for Oracle Database 10*g* release 2 (10.2) is available on Oracle*MetaLink* at:

http://metalink.oracle.com

2 Unsupported Products

The following products are not supported with Oracle Database 10*g* release 2 (10.2):

- Grid Control Support

  Oracle Database 10*g* release 2 (10.2) can be managed as a target by Grid Control 10.1.0.4. However, Oracle Database 10*g* release 2 is not supported by Grid Control 10.1.0.4 as a repository.

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- Pro*COBOL

- JDBC 1.2 driver

  JDBC 1.2 driver is not supported on Solaris 10

- Radius with the CHAP protocol

- Verity

  Verity filters used for Oracle Text are not supported on Solaris 10.

3 Preinstallation Requirements

Refer to the installation guides for the preinstallation requirements.

4 Documentation Corrections and Additions

This section lists the following corrections to the installation guides for Solaris operating System (Solaris x86-64):

- The second note under the "Configuring Kernel Parameters" section incorrectly reads as "In Solaris 10, you are not required to make changes to the `/etc/system` file to implement the System V TPC. Solaris 10 uses the resource control facility for its implementation." The following is the complete note text for the same:

  In Solaris 10, you are not required to make changes to the `/etc/system` file to implement the System V IPC. Solaris 10 uses the resource control facility for its implementation. However, Oracle recommends that you set both resource control and `/etc/system/` parameters. Operating system parameters not replaced by resource controls continue to affect performance and security on Solaris 10 systems. For further information, contact the Sun vendor.

- In the "Configuring Kernel Parameters" section of the Oracle Database Installation Guide for Solaris Operating System (x86-64) the `SHMMAX` parameter is incorrectly referred as `project.max-sem-nsems`. This parameter should be read as `process.max-sem-nsems`.

- In the "Modifying the listener.ora File for External Procedures" section of Chapter 2 of Database and Client installation guides, the path specified for `LD_LIBRARY_PATH` results in an error message. The following are the correct path for the variable:

  ```
  /oracle_home/jdk/jre/lib/i386/server:/oracle_home/lib (for server)
  /oracle_home/jdk/jre/lib/i386/client:/oracle_home/lib (for client)
  ```

- In the "Configuring Kernel Parameters" section of the Database Quick Installation Guide and Preinstallation Tasks chapter of the installation guide for this platform contains the procedure for changing the kernel parameters on Solaris 10. However, if you set the kernel parameters using this procedure, the values are lost when you restart the system. To make the values available after the system restart, use the following procedure to change the kernel parameters:

  1. By default, Oracle instances are run as the `oracle` user of the `dba` group. A project with the `group.dba` name is created to serve as the

default project for the `oracle` user. Run the `id` command to verify the default project for the `oracle` user:

```
# su - oracle
$ id -p
uid=100(oracle) gid=100(dba) projid=100(group.dba)
$ exit
```

2. To set the maximum shared memory size to 2 GB, run the `projmod` command:

```
# projmod -sK "project.max-shm-memory=(privileged,2G,deny)" group.dba
```

Alternatively, add the `project.max-shm-memory=(privileged, 2147483648,deny)` resource control to the last field of the project entries for the Oracle project.

3. After these steps are complete, the /etc/project file should contain the following:

```
# cat /etc/project
```

The following is the output of the command:

```
system:0::::
user.root:1::::
noproject:2::::
default:3::::
group.staff:10::::
group.dba:100:Oracle default
project:::project.max-shmmemory=(privileged,2147483648,deny)
```

4. To verify that the resource control is active, run the `id` and `prctl` commands:

```
# su - oracle
$ id -p
uid=100(oracle) gid=100(dba) projid=100(group.dba)
$ prctl -n project.max-shm-memory -i process $$
process: 5754: -bash
NAME      PRIVILEGE      VALUE     FLAG     ACTION     RECIPIENT
project.max-shm-memory
                privileged      2.00GB     -                deny
```

Note: For additional information, refer to the Solaris Tunable Parameters Reference Manual.

■ The table in the "Checking Software Requirements" section of Chapter 2 in instalaltion guides for Solaris Operating System (x86-64) displays Sun One Studio 10 (c and C++ 5.5) and gcc 3.4.2 as a requirement for PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK), GNU Compiler Collection (GCC). However, this row should be spilt into the following two rows:

Item	Requirement
PL/SQL native compilation	One of the following: ■ Sun ONE Studio 10 (C and C++ 5.7) ■ gcc 3.4.2
Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK), GNU Compiler Collection (GCC)	Sun ONE Studio 10 (C and C++ 5.7)

■ The "Checking Software Requirements" section of Chpter 2 in *Oracle Database Installation Guide for Solaris Operating System (x86-64)* does not specify the command to verify the update level of the operating system. You can use the following command to verify the update level of the operating system:

```
$ cat /etc/release
Solaris 9 4/03 s9s_u3wos_
```

In the output of the command, _u3 refers to update 3 of Solaris 9.

■ In *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide*, Chapter 2, "Preinstallation," in the section "Oracle Clusterware Home Directory," it incorrectly lists the path /u01/app/oracle/product/crs as a possible Oracle Clusterware home (or CRS home) path. This is incorrect. A default Oracle base path is /u01/app/oracle, and the Oracle Clusterware home must never be a subdirectory of the Oracle base directory.

A possible CRS home directory is in a path outside of the Oracle base directory. for example, if the Oracle base directory is u01/app/oracle, then the CRS home can be an option similar to one of the following:

```
u01/crs/
/u01/crs/oracle/product/10/crs
/crs/home
```

This issue is tracked with Oracle bug 5843155.

■ The following text of the section 2.6.1, "IP Address Requirements," in Chapter 2, "Pre-Installation Tasks," of *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide* states that the virtual IP address (VIP) should respond to a ping command:

During installation, Oracle Universal Installer uses the ping command to ensure that the VIP is reachable.

The preceding statement is incorrect. Before installation, the VIP address should be configured in DHCP or /etc/hosts, or both, but it must not be assigned to a server that can respond to a ping command.

This issue is tracked with Oracle bug 6017001.

■ The section 1.3.1, "DB_BLOCK_SIZE Initialization Parameter" of Chapter 1, "Administering Oracle Database" in *Oracle Database Administrator's Reference for UNIX-Based Operating Systems* states an incorrect value (16 KB) for the DB_BLOCK_SIZE on Solaris. The correct value for this parameter on Solaris is 32 KB.

- Appendix H, "Database Limits" of *Oracle Database Administrator's Reference for UNIX-Based Operating Systems* states the incorrct maximum value (`63`) for the `MAXINSTANCES` variable. The correct maximum limit for the variable is `1055`.

- Chaper 2, "Stopping and Starting Oracle Software" of *Oracle Database Administrator's Reference for UNIX-Based Operating Systems* list the following symbolic link to be made in the "Automating Database Startup and Shutdown on Other Operating Systems" section:

Platform	Symbolic Links Commands
AIX	`# ln -s /etc/dbora /etc/rc.d/rc2.d/S99dbora` `# ln -s /etc/dbora /etc/rc.d/rc2.d/K01dbora`
HP-UX	`# ln -s /sbin/init.d/dbora /sbin/rc3.d/S990dbora` `# ln -s /sbin/init.d/dbora /sbin/rc3.d/K001dbora`

Linux	`# ln -s /etc/init.d/dbora /etc/rc.d/rc3.d/K01dbora`
	`# ln -s /etc/init.d/dbora /etc/rc.d/rc3.d/S99dbora`
	`# ln -s /etc/init.d/dbora /etc/rc.d/rc5.d/K01dbora`
	`# ln -s /etc/init.d/dbora /etc/rc.d/rc5.d/S99dbora`

Solaris	`# ln -s /etc/init.d/dbora /etc/rc3.d/K01dbora` `# ln -s /etc/init.d/dbora /etc/rc3.d/S99dbora`
Tru64 UNIX	`# ln -s /sbin/init.d/dbora /sbin/rc3.d/S99dbora` `# ln -s /sbin/init.d/dbora /sbin/rc3.d/K01dbora`

This following is the correct list of symbolic links to be made:

Platform	Symbolic Links Commands
AIX	`# ln -s /etc/dbora /etc/rc.d/rc2.d/S99dbora` `# ln -s /etc/dbora /etc/rc.d/rc0.d/K01dbora`
HP-UX	`# ln -s /sbin/init.d/dbora /sbin/rc3.d/S990dbora` `# ln -s /sbin/init.d/dbora /sbin/rc0.d/K001dbora`

Linux	`# ln -s /etc/init.d/dbora /etc/rc.d/rc0.d/K01dbora`
	`# ln -s /etc/init.d/dbora /etc/rc.d/rc3.d/S99dbora`
	`# ln -s /etc/init.d/dbora /etc/rc.d/rc5.d/S99dbora`

Solaris	`# ln -s /etc/init.d/dbora /etc/rc0.d/K01dbora` `# ln -s /etc/init.d/dbora /etc/rc3.d/S99dbora`
Tru64 UNIX	`# ln -s /sbin/init.d/dbora /sbin/rc3.d/S99dbora` `# ln -s /sbin/init.d/dbora /sbin/rc3.d/K01dbora`

- In the "Overview" section of Chapter 20, "JDBC RowSets" in *Oracle Database JDBC Developer's Guide and Reference* the following information is missing:

  The `javax.sql.rowset` package has to be downloaded from the following link at the Sun site:

  http://java.sun.com/products/jdbc/download.html#rowset1_0_1

  Extract the `rowset.jar` file from the zip file downloaded and include this jar file in the `CLASSPATH`.

5 Installation, Configuration, and Upgrade Issues

Review the following sections for information about issues that affect Oracle Database installation, configuration, and upgrade:

- Latest Upgrade Information
- Installing Enterprise Security Manager
- Installing Oracle Database on a Computer That has an Automatic Storage Management Instance
- extjob Executable Required Directory Permissions
- Modifying a Virtual IP Address Node Application

5.1 Latest Upgrade Information

For late-breaking updates and best practices about preupgrade, post-upgrade, compatibility, and interoperability discussions, refer to Note 466181.1 on Oracle*Metalink* (`https://metalink.oracle.com/`) that links to "The Upgrade Companion" Web site.

5.2 Installing Enterprise Security Manager

To install Oracle Security Manager, install Oracle Client and then select the Administrator installation type.

5.3 Installing Oracle Database on a Computer That has an Automatic Storage Management Instance

Oracle Universal Installer displays an error message that reads 0. This message is displayed after you specify the database home and path in the Specify Home Details screen and click Next. Ignore the error message whenever it is displayed, and continue the installation.

5.4 extjob Executable Required Directory Permissions

To enable the `extjob` executable to locate required libraries, the `$ORACLE_HOME/lib` directory and all of its parent directories must have execute permissions for `group` and `other`.

5.5 Modifying a Virtual IP Address Node Application

When modifying the name, IP address, or netmask of an existing virtual IP address (VIP) resource, use the srvctl modify nodeapps command and include the existing interfaces for the VIP in the -A argument. For example:

```
srvctl modify nodeapps -n mynode1 -A 100.200.300.40/255.255.255.0/eth0
```
This issue is tracked with Oracle bug 4500688.

6 Other Known Issues

The following sections contain information about issues related to Oracle Database 10*g* and associated products:

- Materialized View and Partition Change Tracking Rewrite

6.1 Materialized View and Partition Change Tracking Rewrite

When the query has single column in-lists, the materialized view has ranges, and partition change tracking rewrite is used, you might get stale results with Query Rewrite. Turn off the fresh partition containment rewrite to avoid this problem by using the following command:

```
SQL> alter session set "_query_rewrite_fpc" = false;
```

6.2 Host-Based Mirroring

The host-based mirroring is not supported with ASM. Note that there is no issue with resilvering for storage based mirroring.

Workaround: Use ASM redundancy.

This issue is tracked with Oracle bug 4466206.

6.3 Oracle ODBC Driver Limitations

Oracle ODBC driver for Solaris does not work if you use the REAL data type for a column and the application tries to retrieve data as native double or float data type through PL/SQL stored procedure.

Workaround: Instead of the REAL data type, use the NUMBER(s,p) data type while creating a table.

This issue is tracked with Oracle bug 4551566.

6.4 Importing a User Certificate Into Oracle Wallet Using Oracle Wallet Manager

Oracle Wallet Manager will fail to recognize the user certificate as valid if you capture the user certificate contents from the Oracle Certificate Authority site and save this as a flat file. This is because when saving as a flat file, all the lines of the user certificate are run together with no line breaks.

Workaround: Edit the user certificate. Insert a new line after
`-----BEGIN CERTIFICATE-----` and a new line before
`-----END CERTIFICATE-----`.

6.5 Removing Metrics for Wait Classes Removes Them Permanently

Do not remove the key values for the wait class metrics. Doing so removes them permanently and currently there is no easy way to recover them.

This issue is tracked with Oracle bug 4602952.

6.6 Preventing Loss of Quorum

If a storage area network (SAN) device is used to provide access to a shared storage and IO Multi-pathing (MPxIO) is enabled, then you must install the following patches on all the nodes of the cluster.

- 119375-13

- 119716-10

Without these patches, a node can lose access to the shared storage being accessed through the physical link that gets disconnected or fails.

6.7 Solaris the SMF Boot Archive Service

In Solaris 10 update 1, the boot archive service is introduced. The main purpose of this service is to reduce the boot time and simplify the boot loader. Due to an aggressive shutdown, the boot archive verification service may require manual intervention during boot.

During a patch installation or software upgrade, if you do not shutdown the computer properly, then kernel modules are reported to be out of sync. In such a case, start the computer to the fail-safe menu entry, follow the prompts to re-sync the archive, and then reboot. If you do not want the manual intervention, you can disable the check by running the following commands:

```
# svcprop -p start/exec boot-archive:true
# svcadm refresh boot-archive
```

However, if the kernel modules are not reported to be out of sync, then you can clear the check by logging into the single user shell and running the following command:

```
# svcadm clear boot-archive
```
It is possible to disable the boot archive check on production computer to avoid manual intervention during aggressive reboots. To do so, the patch application and installation of driver or kernel software must be followed by a boot archive update. The kernel software includes the non-Solaris kernel modules.

The boot archive update can be achieved by applying a graceful reboot or an explicit re-sync of the boot archive by running the following command:

```
bootadm update-archive
```

Oracle recommends that you remove the node from the cluster before patch installation and software installation or upgrade. When using CRS this can be done by completing the following steps:

1. Stop the CRS service by using the following command:

   ```
   $CRS_HOME/bin/crsctl stop crs
   ```

2. Disable the CRS service by using the following command:

```
$CRS_HOME/bin/crsctl disable crs
```

3. Install or upgrade the required patch or software

4. Reboot or re-sync the boot archive

5. Enable the CRS service by using the following command:

```
$CRS_HOME/bin/crsctl enable crs
```

6. Start the CRS service by using the following command:

```
$CRS_HOME/bin/crsctl start crs
```

Complete the following steps to remove the node from the cluster if you are using using Sun Cluster:

1. Reboot the node in the maintenance mode

> **See Also:** *Sun Cluster documentation* for details on rebooting a node in maintenance mode

2. Install or upgrade the required patch or software

3. Reboot the node in the cluster mode

A fix for the boot archive service will be integrated in a future Solaris 10 update. After this fix is in place there will be no need to disable the check or to provide manual intervention during a reboot. The boot archive check can be re-enabled by running the following commands:

```
# svccfg -s boot-archive setprop start/exec=/lib/svc/method/boot-archive
# svcadm refresh boot-archive
```

6.8 Increasing the CSS misscount Parameter

When the Solaris fiber channel port driver senses that a link is down, it gives two minutes timeout period before offlining the LUN path associated with the port. The purpose of this delay is to prevent a premature fail over in as a result of a transient link failure. If there are alternate active paths to the LUNs and SCSI reservations are not active, then within this timeout MPxIO automatically reconfigures to use the alternate path.

However, during this timeout period the port failure is not perceived by CRS because the path is not offlined. If the node is evicted during this timeout period, the CRS daemons fail to reboot the node and services will not fail over to other nodes. In this case, the node will reboot only until the link is up again. After the reboot, all services belonging to the node will be up.

To avoid this problem the misscount parameter must be set to a value greater than 120 seconds. As a result, the eviction and reboot process is not affected by the Solaris timeout period. The node is evicted, it reboots and its services fail over to other nodes as expected.

After CRS installation is complete, you can change the misscount parameter by completing the following steps:

1. On any node run the $CRS_HOME/bin/crsctl set css misscount 130 command.

2. On all nodes run the $CRS_HOME/bin/crsctl stop crs command.

3. On all nodes run the `$CRS_HOME/bin/crsctl start crs` command.

The default value for the `misscount` parameter is 27. Increasing the value of this parameter increases the time the node takes to fail over. Therefore, the service level of the cluster reduces for a longer period of time. It is up to the user to decide if a longer fail over time is acceptable. Solaris has a mechanism in place to allow applications to be notified immediately of a link down.

In this release, Oracle is not using this mechanism but work is in progress to make use of this mechanism. In a future Oracle release this workaround will no longer be needed.

6.9 Node Names do not Reflect in the Specify Cluster Nodes to Add to Installation Dialog Box

In the Specify Cluster Nodes to Add to Installation dialog box, an intermittent timing issue is observed. This dialog box prompts you to enter Public Node Names, Private Node Names, and Virtual Node Names for the new nodes to be added. Even after entering the node names, the configuration specified does not reflect in the install area. To avoid this issue, you need to press **Tab** after the last input to this dialog box.

6.10 Invalid Link to Monitor in Memory Access Mode Feature

Do not click the link to the Monitor in Memory Access Mode feature in the database screen. This feature is not available in Enterprise Manager Database Control 10.2.0.2 release. Clicking this link may stop an agent from responding.

This issue is tracked with Oracle bug 4866231.

6.11 Oracle Clusterware Private IP Addresses with Sun Cluster

If you are using a Sun Cluster, then do not enter the private interconnect in the /etc/hosts file, but instead use clusternodeX-priv to indicate the private interconnect for Oracle Clusterware and Oracle RAC.

This issue is tracked with bug 6238217.

7 Documentation Accessibility

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